

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

A first preferred embodiment of the present invention is shown in FIGURES 1 and 2 as a self-sustaining control, generally designated 10, for a gas-powered water heater 12. It is to be understood, however, that the control 10 is equally adaptable to other heating systems, such as a furnace or fireplace insert. (As used herein, the term "heating system" includes all such heating systems.)

The water heater 12 is conventional and includes a tank 14, water inlet 16 and outlet 18. Conventional sensors 20A, 20B and adjustable temperature selector 22 monitor water temperature in the tank 14 and cooperate in a conventional manner to define a demand recognition assembly 24 for providing a demand signal whenever that temperature falls below the set point, established by the selector 22. The water heater 12 further includes a pilot burner assembly 26, having a pilot valve 26A and a sparker 26B, and a main burner assembly 28, having main valve 28A. The valves 26A, 28^A~~B~~ provide conventional communication with a gas supply 30.

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The water heater 12 is sequenced through its operational modes in response to a demand signal. When heating is required, the OFF mode is terminated with opening of the pilot valve 26A and ignition of the pilot burner assembly 26 via the sparker 26B; such ignition begins the PILOT-ON mode. After a time, the presence of the pilot flame enables the main valve 28A to be opened and the main burner assembly 28 to be ignited; that ignition marks initiation of the ON mode. Upon satisfaction, both valves 26A, 28A are closed, returning the water heater 12 to the OFF mode, such that fuel is no longer consumed.

The control 10 includes a storage device 32, a controller or microcontroller 34 and a thermo-electric assembly 36, interconnected as shown in FIGURE 2. In this preferred